C 1008

NELSON SLOUGH WILDLIFE AREA FLOODPLAIN HABITAT RESTORATION DEMONSTRATION PROJECT

Submitted by:
California Department of Fish and Game
in partnership with
Jones & Stokes Associates
and with the support of
The Audubon Society, State Reclamation Board, and California Department of Water Resources

II. Executive Summary

b. Project Description and Primary Biological/Ecological Objectives

A habitat restoration demonstration project is proposed at the Nelson Slough Wildlife Area (Wildlife Area) adjacent to the lower Feather River and Sutter Bypass. The Wildlife Area is located on previously farmed terraces formed by thick deposits of sandy hydraulic mining debris between the river levee and the main channel. A few low areas, such as sloughs, side channels, remnant borrow pits, and floodplain scour depressions, presently support healthy vegetation and provide excellent rearing habitat for juvenile salmon and spawning and rearing habitat for splittail. The extent of these habitats is limited, however, and the vegetation does not naturally regenerate or become established in most areas because the terraces are too high and dry. The frequency of inundation is too low and the depth to the water table is too great to provide fish-rearing habitat or allow natural establishment of vegetation. Additionally, many of the existing low areas do not drain completely to the main channel. Salmon, steelhead, and splittail are stranded in large numbers after high-water events. Excavation of topographically low benches and wetland-slough complexes is proposed on the terraces to provide additional aquatic, wetland, and riparian habitat and to reduce fish stranding.

The proposed project is one of four related projects proposed for the lower Feather River area. The others are a habitat restoration demonstration project at the Bobelaine Audubon Sanctuary, a land acquisition project, and a local watershed stewardship project. These projects will provide the foundation for subsequent projects involving property acquisition and design, funding, permitting, and implementation of ecosystem restoration activities.

c. Approach/Tasks/Schedule

Phase 1 involves developing a design for restoring floodplain function and providing connections between the main Feather River channel and off-channel water bodies, including Nelson Slough. Tasks include preparing a baseline inventory of habitat and sediment texture in the Wildlife Area, analyzing inundation frequency, designing specific locations where excavation would improve habitat, simulating flood conveyance impacts, and investigating several alternatives for economical disposal or reuse of excavated material (including construction of a setback levee). Phase 2 consists of completing environmental documentation, obtaining all necessary permits for the proposed restoration activities, and preparing plans and specifications for implementation. Phase 3 would consist of construction and monitoring. Phases I and II of the project would take 1 year; Phase 3 would take 2 or more years.

d. Justification for Project and Funding by CALFED

The project will explore several new aspects of habitat restoration that will serve as useful precedents for similar projects elsewhere along the lower Feather River and other Central Valley rivers. The project will 1) demonstrate the effectiveness of passive restoration of riparian and wetland vegetation through hydrologically based site design, 2) develop quantitative techniques for balancing restoration with flood-conveyance capacity, 3) investigate the feasibility of low-cost options for excavation and reuse of hydraulic mining debris, 4) determine the longevity and maintenance requirements for constructed side channels, and 5) pave the way for more routine permitting of future restoration projects. Fish species that would benefit from the project include chinook salmon (all four races), steelhead, and splittail. Threatened and endangered wildlife species that would benefit include giant garter snake, Swainson's hawk, yellow-billed cuckoo, and valley elderberry longhorn beetle (VELB). CALFED Bay-Delta Program (CALFED) funding is requested because of the multiple ecosystem objectives of the project, CALFED's willingness to fund design phases of projects, and because the project fits the objectives outlined in CALFED's Ecosystem Restoration Program Plan (ERPP) for the lower Feather River.

e. Budget Costs and Third-Party Impacts

This proposal requests funding for Phases I and II of the Nelson Slough Wildlife Area demonstration project. The estimated total cost of Phases I and II is $256,476. Terrace excavation will provide increased flood-conveyance capacity to compensate for the flow-impeding effects of vegetation. Agricultural activities will not be displaced. Restoration activities that would affect lands outside the levees (e.g., setback levees) would be considered only with landowner support.

f. Applicant Qualifications

The California Department of Fish and Game (DFG) and The Audubon Society (Audubon) own and manage numerous properties along the lower Feather River floodplain in an effort to provide natural habitat. The Reclamation Board is responsible for floodway maintenance and balancing habitat objectives with flood conveyance requirements. Jones & Stokes Associates (JSA) has extensive experience with ecosystem planning and restoration along rivers in the Central Valley.

g. Monitoring and Data Evaluation

Natural colonization of vegetation in excavated areas, fish use of inundated floodplain habitat, and fish stranding will be monitored for 3-5 years following construction. The effectiveness of the project will be based on quantitative statistical comparisons between restored areas, preproject baseline conditions, and control sites elsewhere within the Wildlife Area.

h. Local Support/Coordination with Other Programs/Compatibility with CALFED Objectives

DFG and its partners have worked for years with other programs, including the Riparian Habitat Joint Venture and Partners for Wildlife, to protect and enhance habitat resources on the lower Feather River floodplain by purchasing and restoring properties. This project will enhance the integrity of the flood control and water supply systems and be compatible with water quality objectives.